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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,528	12/20/2001	Paul Wurzinger	016790-0446	2160

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WASHINGTON, DC 20007

EXAMINER
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CASTELLANO, STEPHEN J

ART UNIT	PAPER NUMBER
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3727

DATE MAILED: 10/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/022,528

Applicant(s)

WURZINGER, PAUL

Examiner

Stephen J. Castellano

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 September 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13, 15-17, 19 and 20 is/are pending in the application.  
4a) Of the above claim(s) 5, 13, 16 and 17 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-4, 6-12, 15, 19 and 20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

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Claims 5, 13, 16 and 17 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected specie, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6.

Claims 5, 13, 16 and 17 are withdrawn, claim 18 is canceled and claims 1-4, 6-12, 15, 19 and 20 remain for action on their merits.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-4, 6-12, 15, 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These dependent claims are indefinite because they do not follow the preamble of independent claim 1. For example, claim 2 states "The specimen holder" whereas the preamble of claim 1 is directed to "an apparatus."

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Goodman et al. (Goodman).

Goodman discloses an apparatus comprising a specimen holder (the evacuated wafer container holds semiconductor wafers which are considered as either a specimen or a plurality of specimens) for water-containing specimens for high-pressure freezing (the holder is inherently

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capable of holding water-containing specimens and inherently capable of withstanding high pressure freezing), the holder comprising two shaped parts (11, 12) detachably joinable to one another (although connected by a hinge 13, the hinge may be disassembled and the parts disconnected and the hinge reassembled), wherein the joined shaped parts form a receptacle for holding a specimen, wherein at least one of the shaped parts comprises a diamond material (it is understood that all of the inner surfaces of all of the walls of the container 11 are diamond coated and that the inner surface of cover 12 at 26 and 27 as shown in Fig. 6a is diamond coated with coating 28), and wherein the diamond material forms at least part of a first inner surface of the receptacle. The specimen holder includes an orifice (either the orifice that accommodates nipple 17 shown in Fig. 5, the orifice in top opening of container 11 or the orifice in the bottom opening of cover 12) for the delivery of high pressure.

A very weakly constructed receptacle can contain an extremely high pressure or overpressure when the pressure on the exterior is the same, such as, a receptacle with an internal pressure of 2000 bar when the receptacle is placed within an external pressure of 2000 bar.

For claim 2, insofar as a disk could have almost any shape including a rectangular shape, both of the parts are generally rectangular and disk-shaped.

For claim 9, insofar as a synthetic polycrystalline CVD diamond material could have the exact same structure as a naturally formed or any other diamond material, this limitation is inherent in any diamond material and is structurally equivalent to any diamond material.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7-12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Goodman.

Kim discloses an apparatus comprising a specimen holder (the segmented multi-purpose container is inherently capable of holding a water-containing specimen for high-pressure freezing), the holder comprising at least two shaped parts (20 and 40) detachably joinable to one another, wherein the joined shaped parts form a receptacle for holding a specimen, wherein a spacer ring (30) is provided between the shaped parts. Kim's specimen holder includes an orifice associated with the open ends of the shaped parts and spacer ring. Kim discloses the invention except for diamond material and the metal material of the spacer ring. Goodman teaches a wafer container coated on the interior with diamond material. It would have been obvious to coat the interior of the shaped parts and spacer ring with a diamond coating in order to form a hard, nearly perfect chemically resistant coating which has a low coefficient of friction to resist breakage, cracks and tearing, to resist chemical reaction and to assist in the low friction release of the specimen. Both the shaped parts 20 and 40 are metal as shown by the cross hatching in Fig. 12 and 13. It would have been obvious to provide a complementary material in the spacer ring. Therefore, it would have been obvious to fabricate the spacer ring from metal to provide a material with similar structural strength, chemical reactivity and appearance to the shaped parts in order to make the spacer ring compatible with the shaped parts.

A very weakly constructed receptacle can contain an extremely high pressure or overpressure when the pressure on the exterior is the same, such as, a receptacle with an internal pressure of 2000 bar when the receptacle is placed within an external pressure of 2000 bar.

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For claim 7, the metal of the spacer ring is further defined to be gold, aluminum or copper. Gold, aluminum and copper are well known for their high thermal conductivity and low chemical reactivity. It would have been obvious to use gold, aluminum or copper with specimens requiring low chemical reactivity and where high thermal conductivity is needed for high-pressure and quick-freezing applications.

For claim 8, the upper most portion of the upper shaped part 20 defines a planar surface on a surface facing the receptacle and the lower most portion of the lower part 40 defines a planar surface on a surface facing the receptacle, the spacer is configured to serve as a seal between the planar surfaces and to define the specimen receptacle. Since Goodman teaches that all of the inner surfaces of all of the walls of the container 11 are diamond coated and that the inner surface of cover 12 at 26 and 27 as shown in Fig. 6a is diamond coated with coating 28, the diamond coating forms at least one of the planar surfaces.

Claims 1-4, 6-12, 15, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linner et al. (Linner) in view of Goodman.

Linner discloses an apparatus comprising a specimen holder (the cryo-slammer is an apparatus for ultrarapid cooling of tissue samples and is inherently capable of holding a water-containing specimen for high-pressure freezing), the holder as best shown in Fig. 4 and 5 comprising at least two shaped parts (upper end plate 23 and vacuum chamber housing 47 including flange 42 and sidewall 24) detachably joinable to one another, wherein the joined shaped parts form a receptacle for holding a specimen, wherein a spacer ring (conduit housing 45) is provided between the shaped parts. The shaped parts have orifices associated with their open ends and openings for conduits. Linner discloses the invention except for diamond

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material. Goodman teaches a wafer container coated on the interior with diamond material. It would have been obvious to coat the interior of the shaped parts and spacer ring with a diamond coating in order to form a hard, nearly perfect chemically resistant coating which has a low coefficient of friction to resist breakage, cracks and tearing, to resist chemical reaction and to assist in the low friction release of the specimen.

A very weakly constructed receptacle can contain an extremely high pressure or overpressure when the pressure on the exterior is the same, such as, a receptacle with an internal pressure of 2000 bar when the receptacle is placed within an external pressure of 2000 bar. Linner, however, is not weakly constructed being made of metal components to withstand substantial pressure. It would have been obvious to increase the thickness of the parts to make the parts stronger and able to withstand higher pressure differentials.

For claims 3 and 12, the spacer ring 45 is metal as shown by the cross hatching in the section views, especially Fig. 4 and 5.

For claims 6 and 14, the upper shaped part 23, the lower shaped part 47 and the spacer ring all have an orifice for the delivery of high pressure, the upper shaped part 23 has an upper orifice closed by plate 65, the lower shaped part 47 has an orifice associated with conduit 54 and the spacer ring has orifices associated with conduits 22 and 28. Since Goodman teaches that all of the inner surfaces of all of the walls of the container 11 are diamond coated and that the inner surface of cover 12 at 26 and 27 as shown in Fig. 6a is diamond coated with coating 28, the diamond coating would be associated with the entire interior of the lower shaped part 47 and the facing surfaces of the upper shaped part at the very least and these surfaces have the upper

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orifice closed by plate 65 and the orifice associated with conduit 54, then the diamond material comprises at least two orifices for the delivery of high pressure.

For claim 7, the metal of the spacer ring is further defined to be gold, aluminum or copper. Gold, aluminum and copper are well known for their high thermal conductivity and low chemical reactivity. It would have been obvious to use gold, aluminum or copper with specimens requiring low chemical reactivity and where high thermal conductivity is needed for high-pressure and quick-freezing applications.

For claim 8, the upper most portion of the upper shaped part 23 defines a planar surface on a surface facing the receptacle and the lower most portion of the lower part 47 defines a planar surface on a surface facing the receptacle, the spacer is configured to serve as a seal between the planar surfaces and to define the specimen receptacle. Since Goodman teaches that all of the inner surfaces of all of the walls of the container 11 are diamond coated and that the inner surface of cover 12 at 26 and 27 as shown in Fig. 6a is diamond coated with coating 28, the diamond coating forms at least one of the planar surfaces.

For claim 15, the upper shaped part 23 comprises a high-pressure conduit and the lower shaped part 47 comprises a disk shaped diamond material forming the first inner surface of the receptacle and also the lower shaped part 47 comprises a high-pressure conduit and the upper shaped part 23 comprises a disk shaped diamond material forming the first inner surface of the receptacle.

Re claim 19, Linner discloses a cryogen source as the source of fluid coolant 40.

Applicant's arguments filed September 22, 2004 have been fully considered but they are not persuasive. Applicant argues that none of the references teach high pressure freezing. The



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fact that these references may be for different uses, some of the references are not used in freezing, doesn't preclude the capability of these specimen holders being used for high pressure freezing. Applicant also argues that the thin wall thickness of certain references (e.g. Goodman) would cause the walls to flex and fail. If the high pressure is applied equally to the interior as well as the exterior of these specimen holders, there would be negligible flexing and failure or rupture should not occur.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Castellano whose telephone number is 703-308-1035. The examiner can normally be reached on M-Th 6:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lee W. Young can be reached on 703-308-2572. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Stephen J. Castellano  
Primary Examiner  
Art Unit 3727

sjc